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JOHN E. FLETCHER

RESPLENDENT IN SIOUX REGALIA, CHIEF CRAZY BULL STUDIES AN ANCESTOR'S PORTRAIT

The painting is one of a series which appeared in recent issues of the *National Geographic Magazine*. Among items of Crazy Bull's finery are sleeve decorations of porcupine quills (Bulletin No. 4).

Bulletin No. 1, November 6, 1950

Tiny Wake Island Records Another Big Moment

TINY Wake Island, site of the Truman-MacArthur meeting, holds a big place in the hearts of patriotic Americans because of the gallant stand made on its shores by a Marine garrison against an overwhelming Japanese force in the early days of World War II.

Still visible are the scars of the 14-day ordeal that ended with the Japanese landing on December 22, 1941. Subsequent American bombing of the Jap installations also has left its mark. Twisted gun emplacements, metal parts of burned airplanes, and the wreck of a Japanese ship are among the relics of war.

Nearest Neighbor 370 Miles Away

All in all, the island is much the same as it was in the 1930's when Pan American clippers squatted there for refueling before going on to Guam. What is generally referred to as Wake Island is really an atoll-cluster of three coral islets of which V-shaped Wake with its two-square-mile area is the largest. It lies 2,300 air-line miles west of Honolulu and 1,500 miles northeast of Guam.

Nearest neighbors of the Wake group are the Taongi (Pokaakku) Islands, 370 miles to the southeast. Along with the more important Marshall, Caroline, and Marianas islands, they were mandated to Japan after World War I and now are part of the United States Trust Territory of Pacific Islands (map, next page). Wake is an outright American possession, under the jurisdiction of the Navy.

Its isolation, coupled with its position on a direct transpacific air route, has given Wake its importance in peace and war. Before it was developed as a station for commercial air liners, it had no permanent population. Then it blossomed with a 45-room inn, a theater, tennis courts, shell roads, and a vegetable garden of a thousand square feet to provide hotel and plane passengers with fresh vegetables.

Two Smaller Islets Are Peale and Wilkes

The land around the triangular lagoon is nowhere more than 21 feet above sea level. The heights are topped with umbrella and hardwood trees and scrub, while magnolias dot the beach. The lagoon is not more than 10 or 15 feet deep at any point, and is of no practical value for ships, although it provides a safe landing for seaplanes. The atoll reef, surrounding the three islets, encloses a water and land area four and a half miles long and two miles wide. There is only one break in the reef, navigable only by small boats. There is no place around the atoll suitable for anchoring; vessels tie up to mooring buoys.

The two smaller islets comprising the group are Peale and Wilkes. The latter was named for Commander Charles Wilkes, United States Navy, who explored the islands in 1836 on a commission from Congress to survey Pacific islands. Wake was discovered by the British in 1796. Cap-

ENTERED AS SECOND CLASS MATTER APRIL 27, 1943, POST OFFICE, WASHINGTON, D. C., UNDER ACT OF MARCH 3, 1879.
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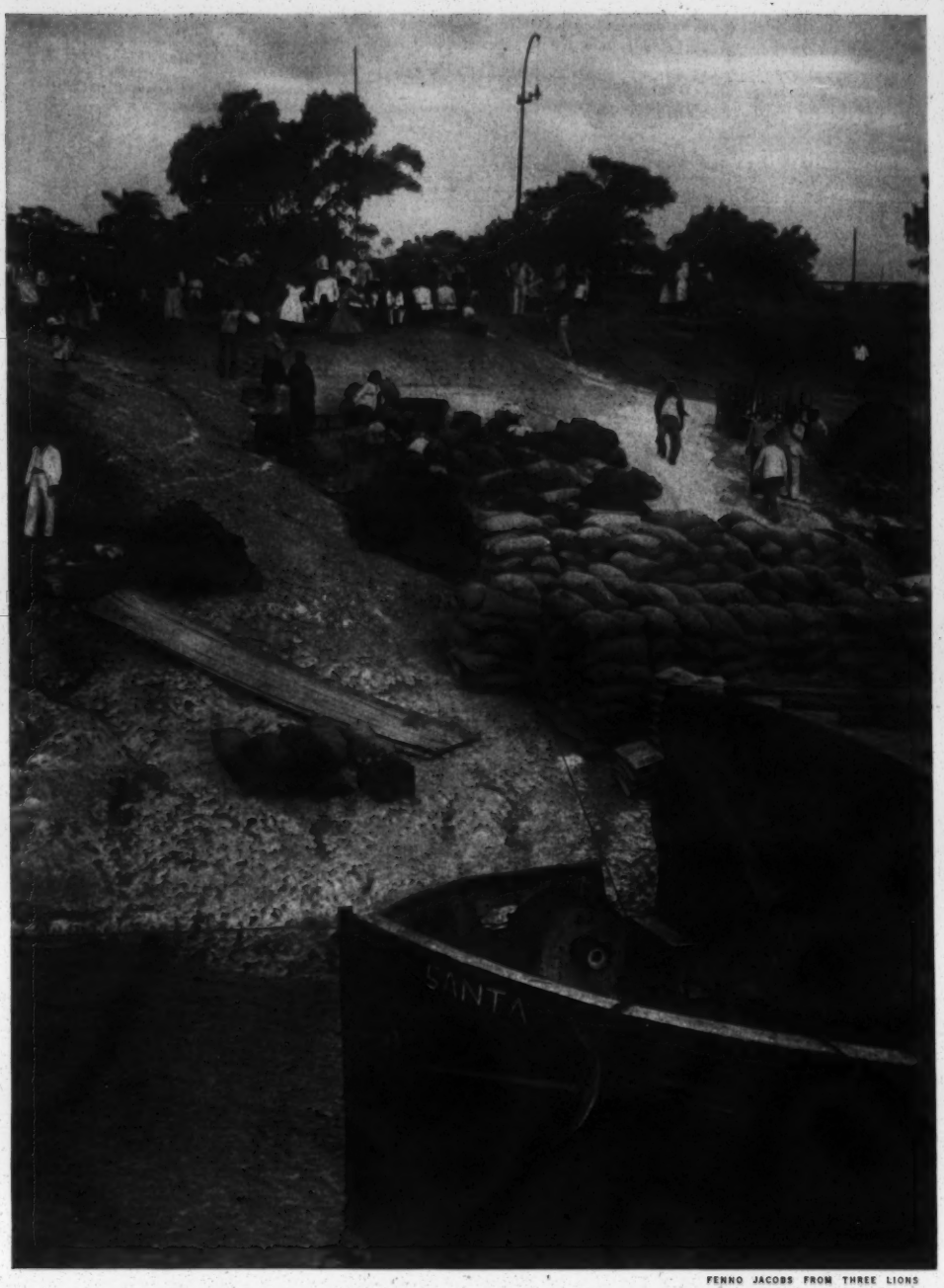

FENNO JACOBS FROM THREE LIONS

NEAR CONCEPCIÓN, PARAGUAY, BANANAS AND BAGS OF YERBA MATÉ AWAIT SHIPMENT

The Paraguay River, tributary of the Paraná, flows through the landlocked South American country (Bulletin No. 3). Navigation, even for boats of this size, is difficult. The channel sometimes shifts, leaving river "ports" high and dry.

Parallels Often Made News as U. S. Developed

LIKE the 38th parallel, currently well known as the arbitrary line set up after World War II to divide north and south Korea, many another segment of latitude and longitude has added its footnote to history.

A few glances at maps of the continents, however, and it becomes apparent that such lines have but rarely formed boundaries in the Old World. It is in the United States, Canada, and Australia almost exclusively that straight-line borders, usually east-west or north-south, appear.

49th Is Peace Parallel

In contrast to Europe and Asia, where most countries and divisions within countries are defined by the crooked lines of natural boundaries, straight-line borders are common north of the Rio Grande all the way to Alaska. In fact, no state of the union nor mainland province of Canada is outlined wholly by natural boundaries.

Outstanding is the 1,269-mile stretch of the 49th parallel from Lake of the Woods at the top of Minnesota west to the Strait of Georgia in British Columbia. For more than a century it has formed the western third of the ungarrisoned United States-Canada border, model of international amity. Point Roberts at its western end and Northwest Angle (illustration, next page) at its eastern end are tiny United States enclaves.

In 1818 a treaty with Great Britain established the 49th parallel as the international fence from Lake of the Woods to the summit of the Rockies in west Montana. A year later, Spain, conveying Florida to the United States, gave up western land claims north of parallel 42. Thus was set what still survives as the southern line of Oregon and Idaho.

In 1824 Russia's tsar, by treaty with the United States, abandoned Pacific coast claims south of 54 degrees and 40 minutes north latitude, which remains today as Alaska's southern limit. Thus, Great Britain alone remained to contest with the United States the far-west land between parallels 42 and 54-40—roughly what is now Oregon, Washington, Idaho, and southern British Columbia.

Longest Straight Line in Political Geography

The years passed until 1844, when the Democratic campaign slogan "54-40 or fight" helped elect James K. Polk. But, without a fight, the treaty of 1846 between the United States and Britain extended the 49th parallel as the boundary from the Rockies to the Pacific.

Even longer than the part of the 49th parallel serving as the United States-Canada border is the portion of the 60th parallel from Hudson Bay to Alaska—about 1,500 miles—separating four Canadian provinces on the south from Yukon and Northwest territories on the north. Almost connecting at right angles is the 600-mile stretch of the 141st line of west longitude that serves as Canada-Alaska border.

Within the United States, straight and nearly straight latitude and longitude lines predominate as boundaries. Colorado and Wyoming appear as perfect rectangles.

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tain E. D. Taussig of the *U.S.S. Bennington* hoisted the American flag over the islands for the first time in January 1899.

Wake was not fortified until two years before Pearl Harbor. In 1940 the Marine garrison arrived. Japanese planes began the bombardment only a few hours after the attack on Pearl Harbor. The first American raids on the Japanese garrison occurred two months after the surrender. A tight naval blockade kept supplies and reinforcements from reaching the island.

The results of the blockade and bombing were disclosed in July 1945. A Japanese hospital ship was then permitted to remove the wounded and sick Japanese soldiers and sailors. Inspection of the Japanese ship by officers of an American destroyer revealed that most of the 974 Japanese being evacuated were suffering from malnutrition and tuberculosis. A few weeks later the war ended and the stars and stripes again flew over Wake after nearly a four-year lapse.

NOTE: Wake may be located on the National Geographic Society's map of the Pacific Ocean and the Bay of Bengal, on which it appears in a large-scale inset. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

For additional information, see "Navy Wings over the Pacific" (12 color photographs), in the *National Geographic Magazine* for August, 1944*; and "Flying the Pacific," December, 1936. *(Issues marked with an asterisk are included on a special list of Magazines available to teachers in packets of ten for $1.00; issues unmarked are 50¢ a copy.)*

See also, in the GEOGRAPHIC SCHOOL BULLETINS, January 12, 1942, "Wake Island, The New Watchword for Valor."

DRAWN BY HERBERT E. EASTWOOD

PIN-POINT WAKE IS A WAY STATION ON THE PEARL HARBOR-GUAM-MANILA AIR ROUTE

The atoll is shown just north of the outlined area labeled "United States Trust Territory of the Pacific Islands." The United States administers these islands through the authority of the United Nations. Between World Wars I and II, they were mandated by the League of Nations to Japan. Guam is an exception, having been an outright possession of the United States since the Spanish American War.

Bulletin No. 3, November 6, 1950

Paraguay a Promised Land for Kalmucks

MYTHS of the native Guarani Indians claim that Paraguay is the Garden of Eden. And countless Spanish adventurers, who, incidentally, became the nation's first immigrant-citizens, searched the central South American area for the fabulous golden city of El Dorado. Now, to a new group of immigrants—arriving from displaced-persons camps in Europe—the California-size landlocked country may well prove a "promised land."

Seven hundred Kalmucks—last-known free and organized community among descendants of Genghis Khan's Golden Horde—are scheduled for Paraguayan citizenship. They will be given cows, horses, chickens, farming tools, and 9,000 fertile acres on a frontier waiting development.

"Fountains of Youth"

It was not until relatively recently that Paraguay fully realized the potential wealth in its soil, its pampas (vast cattle-grazing areas), and its forests. In the early 16th century, men settled on the land while exploring for gold or an easy "northwest passage" to the mines of Peru and Bolivia.

Failing to find quick wealth, the Spaniards then looked for local "fountains of youth." Waters of the Bermejo River, for instance, were reputed to give one a wrinkleless old age, free from the "gravel, the stone, the cholic, the gout, the dropsy, and indigestions." Paraná River water was credited with clearing the throat and purifying the voice.

Jesuit priests, in 1609, began establishing missions among the Indians. Not content with merely converting 150,000 Guaranis, they organized the natives into more than 30 flourishing colonies. They taught them agriculture, weaving, carving, metal-working, and even painting. More important, it was probably the priests who introduced the cultivation of the native yerba tree. From its leaves is made the popular South American tea called maté—one of the chief modern exports of the country.

Two Devastating Wars

The Jesuits were expelled from the country in 1767 in accordance with an empire-wide decree of the Spanish king, who feared their power. A slow decline in the political and economic life of Paraguay set in. The Indians forgot their new skills, yerba maté plantations grew into dense jungles, and herds of fine cattle, believed to number about 800,000 head, were lost.

Two devastating wars reduced the country's size and population. Beginning in 1864, a six-year conflict with Argentina, Brazil, and Uruguay lost Paraguay 50,000 square miles of territory and destroyed all but 300,000 of her million and a quarter people. The nation still has not completely recovered. The bitter Chaco War with Bolivia in the 1930's made conditions worse, even though Paraguay got the lion's share of the disputed land by the final settlement in 1938.

Today Paraguay is making a determined bid for the prosperity her abundant natural resources promise. Immigrants of almost every race and creed are welcomed to swell a population estimated at little over a

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Few of the state lines run exactly on the latitude or longitude originally intended. Crude instruments coupled with careless surveying of a century ago resulted in many out-of-place lines. Half a dozen or more north-south boundaries are slightly west of even-degree Greenwich meridian lines because they were calculated in terms of a since-discarded system of longitude west of Washington, D. C.

Best known state partition, perhaps, is the Mason-Dixon line, first surveyed in colonial times, and later viewed as a North-South division. Fixed by a strange formula with reference to the settlements of Philadelphia and New Castle, it happened to run close to the 40th parallel, at 39° 43′ 19.91″. Its resurvey now is planned.

The same 38th parallel that has so divided Korea cuts across 12 states from Virginia to California. Nowhere does it serve as a state line.

NOTE: Boundaries in Canada and the United States may be located on the Society's maps of the United States of America, the maps of various sections of the United States (refer to map list), and the map of the World.

For additional information, see "Men, Moose and Mink of Northwest Angle," in the *National Geographic Magazine* for August, 1947; and "How the United States Grew," May, 1933 (out of print; refer to your library); see also, in the GEOGRAPHIC SCHOOL BULLETINS, April 17, 1950, "Maryland Plans Survey of Mason-Dixon Line."

J. BAYLOR ROBERTS

AN IRON POST MARKS NORTHWEST ANGLE, MINNESOTA, NORTHERNMOST UNITED STATES POINT

Bulletin No. 4, November 6, 1950

Foresters Condemn Porcupine Eating Habits

THE porcupine, perennial scamp, is in trouble again.

This time it's the United States Forest Service on the Pacific coast that has labeled porky a public enemy. It is not his needle-sharp quills which have brought him this shame, but his notoriously careless eating habits, and his unfortunate choice of foods.

The animal's natural defense is effective and well known. It consists of about 30,000 barbed quills which cover his back, sides, and tail. He can control them perfectly, lay them flat or raise them in a mass of bristles whenever he wants to. One swift lash of the tail can drive a few dozen quills through a heavy glove. However, it is only a superstition that porky can throw his quills like darts.

Feasts on Trees' Inner Bark

The porcupine isn't really looking for trouble. He means no harm. He's a friendly, inquisitive, night-roaming little animal who can be tamed as a very amusing pet. He uses his defense only when provoked to anger or fright, and the victim usually has only himself to blame.

What keeps porky in hot water with foresters and farmers are his four buckteeth—sharp as chisels. These he uses to chip off the outer bark of trees so that he can eat the tasty inner bark. This inner layer is the life line of the tree. It carries the starches and sugars that the tree must have to live. By raids on the tree's food supply, far too many porcupines have been killing far too many California pines.

Trees receive the greatest damage in winter. When snow covers gardens and grainfields, the porcupine still can dine on tender tree bark. Even when the snow is deep he can always reach this pantry. If he girdles a tree (chisels a ring completely around its trunk), the tree will die above the chewed area. But even if he only gnaws spots here and there on the tree, it will be weakened. Disease, drought, and storms easily attack the gnawed areas.

Porky Knows What's Best for Porky

Naturalists observe that porcupines sometimes return year after year to feed on a given tree. Each annual meal is gnawed above the earlier ones until the wound grows so extensive that the tree dies.

Porky knows what he's doing when he works upward for his meals. Tree roots send minerals and moisture upward through the inner core of the tree. The leaves, aided by sunlight, make starch and sugar that return to feed the trunk and roots through the soft inner bark. Removal of the inner bark makes a dam above which starch and sugar collect through the growing season. Chemical tests show that there is twice as much, or more, sugar above ring cuts of inner bark as is found in undamaged trees.

The porcupine is fond of sugar, and also has a craving for salt which sometimes gets him into trouble. He likes to gnaw on stair rails, tool handles, tables, canoe paddles—any wooden object that is salt-soaked from food or sweaty hands. North woodsmen say it isn't necessary to

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million people. The government lends money to farmers and offers an extension service, partly staffed by specialists from the United States and Brazil, to improve methods of cultivation. Asunción, the capital (illustration, below), is the center of this activity.

Most of the present settlers are given rich eastern lands between the nation's two principal rivers—the Paraguay (illustration, inside cover) and Paraná. But two-thirds of the land area, with a scant 50,000 people, lies northwest of this section in the Gran Chaco. Here, in a climate similar to southern Florida, is a west as wild as any in the New World—a challenge to the energies of future immigrants.

NOTE: Paraguay is shown on the Society's map of South America.

For additional information, see "Through Paraguay and Southern Matto Grosso," in the *National Geographic Magazine* for October, 1943*; "River-Encircled Paraguay," October, 1933 (out of print; refer to your library); and "Buenos Aires and Its River of Silver," October, 1921.

See also, in the GEOGRAPHIC SCHOOL BULLETINS. February 21, 1949, "Asunción Views Another Bloodless Revolution"; and "Rich Paraguay Land Yields Thin Livelihood," April 14, 1947.

FENNO JACOBS FROM THREE LIONS

IN FRONT OF THE NEWSPAPER OFFICE, CITIZENS OF ASUNCIÓN READ LATE BULLETINS

Bahrein Profits by Meeting of East and West

BAHREIN, a largely barren island in the Persian Gulf, is one of the richest spots on earth. Its wealth in oil and pearls (illustration, next page) continues to make it a center of international attention.

The island is 27 miles long and 10 miles wide. Spotted around it are smaller islands, which, together with Bahrein itself, constitute the State of Bahrein. Treaty arrangements between the ruling sheik and Great Britain provide a British political agent in Manama, the capital, to act as adviser.

Americans Found Bahrein's Oil

Situated 20 miles off the Saudi Arabia coast and protected by the Qatar peninsula, the low-lying islands appear little more than extensions of the mainland deserts. Only about one-twentieth of the area is cultivated. Occasional wells furnish water for growing dates, citrus fruits, and lucerne (called alfalfa in America). Several of the smaller islands are uninhabited. A hill 400 feet high in the center of Bahrein Island is the archipelago's highest ground.

But 2,000 feet to 4,000 feet beneath this unpromising surface lie the riches of the ages. In the early 1930's American geologists surveyed the island and drillers struck oil to usher in the first Arab oil boom. Later, fields in near-by Saudi Arabia proved even richer than the Bahrein deposits.

The whole of Bahrein Island is what geologists call an elongated dome—a broad, gentle fold of rock which often pockets beneath it a pool of petroleum. American-owned companies get credit for finding and developing the Bahrein deposit.

Credit must be shared with the father of the present sheik. In granting oil concessions to foreign companies, he ushered in a new way of life for his people. His gamble paid off, the Bahreinis made the adjustments necessary, and today Bahrein ranks as one of the principal centers of activity in the Middle East. Also, it is a prime example of the friendly and mutually rewarding meeting of East and West.

Sheik Uses Oil Royalties Wisely

With oil royalties, the present ruler has improved the health of his people and extended the school system. In a special school selected Bahreinis are trained for highly skilled jobs. Altogether, 6,000 of the 120,000 islanders work for the oil company. Population has increased by 50 per cent since the company started operations. Diet is improved and malaria is completely under control. Five modern hospitals provide free medical service.

The very geography of the islands has been changed. An automobile causeway connects Manama, at the northern end of the island of Bahrein, with Muharraq, a large community on an important smaller island across a channel a mile and a half wide.

A lengthy pier jumps from Bahrein across Sitra Island to the deep waters of the gulf. At its end tankers load oil at the rate of two to six

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move a lumber camp, as "the porkies will eat it down." They can bring the same fate to ghost mining towns of the Rockies.

The porcupine is protected by law only in a few localities. Although it is one wild animal that may be readily caught and killed without a gun, this fact is seldom important in the United States. But in northern Canada and Alaska it may mean survival for the hunter or trapper stranded by a storm far from food supplies.

NOTE: For additional information, see "Porcupines, Rambling Pincushions," in the *National Geographic Magazine* for August, 1950. (The January, 1912, and June, 1911, issues also contain articles on the porcupine. These are out of print but may be in the school or public library's reference department.)

GERARD HUBBARD

"STICKLY PRICKLY" FLUFFS UP ITS QUILLS AND ACCEPTS A BITE TO EAT FROM A PAL

While this porcupine happily munches at a slice of bread, its thousands of spiky quills stand erect but harmless. Only when annoyed or frightened does it bristle them into barbed weapons. The porcupine eats fruits and vegetables, and this pet is particularly fond of bread.

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a day. In the other direction a pipe line plunges thirty-some miles to the oil fields of Saudi Arabia to bring mainland oil to refineries on the island of Bahrein.

Both Manama (28,000) and Muharraq (18,000) are close-built, white-walled, minaretted cities in the ancient Arab mold. But both now have electricity. New wells have been dug to increase the water supply. Fresh-water springs beneath the Persian Gulf are an oddity of the region. Divers disappear with goatskins in the brine and come up with drinking water.

NOTE: Bahrein is shown on the Society's map of Europe and the Near East.

For additional information, see "In Search of Arabia's Past," in the *National Geographic Magazine* for April, 1948; and "Bahrein: Port of Pearls and Petroleum," February, 1946.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, November 22, 1948, "Arabs' Neutral Territories May Have Oil."

MAYNARD OWEN WILLIAMS

AN AMERICAN SHOPPER LETS GENUINE PEARLS TRICKLE THROUGH HER FINGERS

In Manama the proud merchant displays his stock in trade. The shallow Persian Gulf waters around Bahrein are thick with pearl oysters. Pearl fishers at many places can get oysters without diving. Once 20,000 pearl fishers in 1,000 boats went out each season; now fewer than 300 boats engage in the hunt. Jobs at the oil wells and refineries have lured many divers. Pearls result when oysters seek to "wall off" by continued secretions a parasitic worm or other irritant inside its shell. In Japan and other places cultured pearls are "planted" by manually introducing the irritant. Bahrein naturally forbids the importation of such gems.

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